

Algebra: Graphing Inequalities and - perhaps - Intro to Linear programming

out of 80 points

Algebra: Graphing Inequalities and - perhaps - Intro to Linear programming

3.1 - solving by graphing & substitution

3.1 Practice (excused if you were absent)

3.1 bookwork /1-46

3.2 - solving by elimination

3.2 Practice (excused.....)

3.2 bookwork /9-35

3.3 graphing linear inequality

3.3 Practice / 3.2 Practice B

3.3 bookwork /11-44

3.4 graphing multiple linear inequalities

3.4 practice

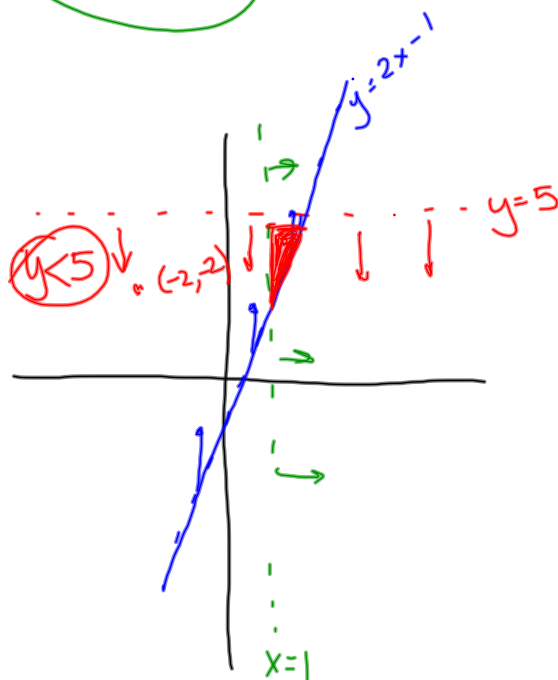
3.4 bookwork /9-45

Algebra: Graphing Inequalities and - perhaps - Intro to Linear programming

3.4/17 Graph

$$\begin{cases} y \geq 2x - 1 \\ x > 1 \\ y < 5 \end{cases}$$

this means
on 1 graph



- replace inequality with =
- graph line lightly
- shade one side or other
(check a point not on line with original inequality)
- fix the line solid or dashed

Algebra: Graphing Inequalities and - perhaps - Intro to Linear programming

How can I shade accurately?

If $y > mx + b$
shade ABOVE the line

If $y < mx + b$
shade below line

If $x > c$ shade to the right of the
vertical line

If $x < c$ shade to the left of the vertical line

Ⓞ pick a point and compare x- and y-coordinates in
original inequality
if they make inequality TRUE, shade THAT side of line
if they make inequality FALSE, SHADE OTHER SIDE

Algebra: Graphing Inequalities and - perhaps - Intro to Linear programming

Thursday - Solve simultaneous EQUATIONS3.1 and 3.2

Solution

I

1 answer
(x, y)or
 $\begin{cases} x = \\ y = \end{cases}$

II

"No solution"
- parallel
lines- or " $0=7$ "- same slope
different
y-intercept

$$y = 2x + 3$$

$$y = 2x + 7$$

* graphing

* substitution

* elimination

* any way you want

* word problems

No

INEQUALITIES

on

Thursday

III

"infinite solutions"

- same exact line

- " $0=0$ "- same slope AND
same y-intercept

Algebra: Graphing Inequalities and - perhaps - Intro to Linear programming

32 Practice B #2

Elimination

pick x

pick x or y

$$x+3y=-9$$

$$-x+4y=16 \text{ OR}$$

pick y

$$x+3y=-9$$

OR

$$4y=x+16$$

$$x+3y=-9$$

$$x+16=4y$$

① pick a variable

② multiply each equation by 1

$$x+3y=-9$$

$$x+16=4y$$

③ chg the signs in ONE equation

$$-x-3y=+9$$

$$x+16=4y$$

⑤ ADD

$$0-3y+16=9+4y$$

⑥ SOLVE

$$+3y \quad +3y$$

$$x+16=4y$$

$$x+16=4(1)$$

$$x+16=4$$

$$-16 \quad -16$$

$$x=-12$$

$$16=9+7y$$

$$-9 \quad -9$$

$$7=7y$$

$$\frac{7}{7} \quad \frac{7}{7}$$

$$1=y$$

Algebra: Graphing Inequalities and - perhaps - Intro to Linear programming

82 Practice B #2

pick x or y

$$x + 3y = -9 \quad \textcircled{E1}$$

$$-x + 4y = 16 \quad \textcircled{E2}$$

Elimination

pick x

$$x + 3y = -9$$

OR

$$x + 16 = 4y$$

① pick a variable

② identify the coefficients in each eqⁿ

$$\textcircled{E1}: 3$$

$$\textcircled{E2}: 4$$

③ multiply "wrong" equation

$$3\textcircled{E2}: 3(-x + 4y = 16)$$

$$-3x + 12y = 48$$

new E2

$$4\textcircled{E1}: 4(x + 3y = -9)$$

$$4x + 12y = -36$$

new E1

④ change the signs in one equation

$$+3x - 12y = -48$$

$$4x + 12y = -36$$

⑤ ADD

$$7x + 0 = -84$$

⑥ SOLVE

$$\frac{7x}{7} = \frac{-84}{7}$$

$$x = -12$$

⑦ get other variable

$$-x + 4y = 16$$

$$-(-12) + 4y = 16$$

$$12 + 4y = 16$$

$$4y = 4 \text{ so } y = 1$$

$$\begin{aligned} x + 3y &= -9 \\ (-12) + 3y &= -9 \\ +12 & \quad +12 \\ 3y &= 3 \end{aligned}$$

Algebra: Graphing Inequalities and - perhaps - Intro to Linear programming

$$x + 3y = -9$$

$$-x + 4y = 16$$

use substitution① solve for $x =$ or $y =$

$$x + 3y = -9$$

$$-3y - 3y$$

$$x = -9 - 3y$$

② substitute $x = -9 - 3y$ into OTHER

$$\rightarrow -x + 4y = 16$$

$$-(-9 - 3y) + 4y = 16$$

$$9 + 3y + 4y = 16$$

$$9 + 7y = 16$$

$$\begin{array}{r} -9 \\ -9 \end{array} \quad \begin{array}{r} -9 \\ -9 \end{array}$$

$$7y = 7$$

$$y = 1$$

$$x = -9 - 3y$$

$$\text{but } y = 1$$

so

$$x = -9 - 3(1)$$

$$x = -9 - 3 = -12$$